

Patent Claims

1. Method for adjusting time delays between at least two channels in an optical WDM (wavelength division multiplex) transmission system comprising the following steps:

- Demultiplexing the signals, delaying the signals individually between channels and multiplexing the signals again for the next step
- First remodulating the multiplexed signal with a clock signal of high frequency
- monitoring the remodulated signal with at least one low frequency photodetector unit
- measuring, analyzing the photocurrent of the photodetector, adjusting via an electronic circuit the time delays between the channels.

2. Method for adjusting time delays between at least two channels in an optical WDM (wavelength division multiplex) transmission system comprising the following steps:

- Demultiplexing the signals, delaying the signals individually between channels and multiplexing the signals again for the next step
- First monitoring a part of the remodulated signal from a second modulator with at least one low frequency photodetector unit
- remodulating the multiplexed signal in a modulator with a clock signal of high frequency
- measuring, analyzing the photocurrent of the photodetector, adjusting via an electronic circuit the time delays between the channels.

3. Device for a synchronization of data in an optical WDM transmission system, consisting of the following parts: a wavelength demultiplexer for demultiplexing the incoming data stream in the synchronizer, delay lines for the individual wavelength channels, a multiplexer for combining the data stream before the remodulation, a modulator modulated by a high frequency clock signal the multiplexed data stream and at least one photodetector tapped to the output signal of the multiplexer (10),

wherein the at least one photodetector (4) is optically connected to at least a part of the multiplexed data stream and electronically connected to an electronic control circuit (6) which is connected to the individual delay lines (2) for an automatic adaptation.

5

4. Device according to claim 3, wherein a second demultiplexer is tapped to the output signal of the multiplexer connected to at least one photodetector for each individual wavelength of the wavelength multiplex.

10
11
12
13
14
15
16
17
18
19
20

5. Device according to claim 3, wherein a part of the wavelength multiplex signals (A) is tapped and feed in a second modulator connected with at least one photodetector and driven by the same clock signals as the modulator.

6. Device according to claim 3, wherein the demultiplexer and the photodetectors are integrated in an AWG optical component.

7. Regeneration device in a telecommunication system working with a bit synchronization devices as claimed in claim 3.

8. Telecommunication system with at least one transmitter, one receiver and transmission line with regeneration means in the line containing a device for synchronization as claimed in claim 3.